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# Development and evaluation of a tool to assess the frequency of family meals, characteristics of the mealtime environment, and fruit and vegetable consumption among families receiving services from WIC, EFNEP and FNP

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**DEVELOPMENT AND EVALUATION OF A TOOL TO ASSESS THE FREQUENCY  
OF FAMILY MEALS, CHARACTERISTICS OF THE MEALTIME ENVIRONMENT,  
AND FRUIT AND VEGETABLE CONSUMPTION AMONG FAMILIES RECEIVING  
SERVICES FROM  
WIC, EFNEP AND FNP.**

by

Chelsea Kingston

A Thesis Submitted in Partial Fulfillment  
Of the Requirements for a Degree with Honors  
(Dietetics)

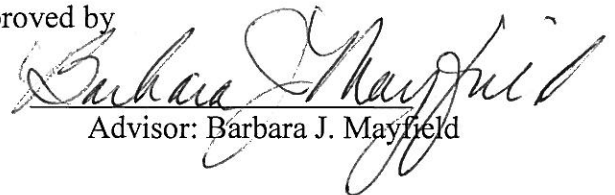
The College of Consumer and Family Sciences

Purdue University

May 2009

West Lafayette, Indiana

Approved by

A handwritten signature in cursive script, appearing to read 'Barbara J. Mayfield', is written over a horizontal line.

Advisor: Barbara J. Mayfield

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Reviewer: Megan McCrory

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## **Abstract**

Research indicates a positive association between family meal frequency, positive family meal environment, and increased fruit and vegetable consumption among children. The purpose of this project was to develop and evaluate a tool to assess frequency of family meals, characteristics of the mealtime environment, and fruit and vegetable consumption in families served by the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), the Expanded Food and Nutrition Education Program (EFNEP) and the Family Nutrition Program (FNP), the programs targeted by Indiana's State Nutrition Action Plan (SNAP).

A quantitative survey of family meal assessment questions was pilot tested with a sample of 144 participants in the three programs targeted by SNAP. The survey was then administered to 20 parents of children enrolled in Purdue's Child Development lab schools to determine test-retest reliability. A qualitative survey on how to efficiently collect participant intervention data was also administered. Six professionals and paraprofessionals representing the targeted populations evaluated the cover information page in a focus group as well as 3 open-ended interviews.

Principal Component Analysis (PCA), paired t-tests and Pearson correlation coefficients, and separate linear regression analysis were completed. The findings indicate most results of questions showed significant test-retest reliability ( $p < .05$ ). Increased family meal frequency and a positive family meal environment were both positively associated with fruit and vegetable intake ( $p < .01$ ).

Questions for the final SNAP Family Meal Assessment Tool were selected based on response failure rates, test-retest reliability, and the relationship of family meal measures to fruit and vegetable intake. In the future, the tool will be administered as a pretest before family meal education and again as a post-test at a follow-up visit. This tool can be easily administered and completed to effectively evaluate the impact of SNAP family meal education.

## **Statement of Purpose**

The purpose of this honors project was to aid in the development of an assessment tool to evaluate the Indiana State Nutrition Action Plan (SNAP). An objective of SNAP is to promote family meals to increase fruit and vegetable intake among the participants served by the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), the Expanded Food and Nutrition Education Program (EFNEP) and the Family Nutrition Program (FNP) (for description of each program, please see Appendix A). Research has shown a positive association between family meal frequency, positive family meal environment, and increased fruit and vegetable consumption among children. Therefore, the purpose of the assessment tool will be to evaluate the impact of family meal education provided by each of these programs on their participants. The tool measures family meal frequency, characteristics of the mealtime environment, television viewing during meals, and fruit and vegetable intake. For efficiency, the assessment tool was created to be brief, no more than one page in length, accurate, and reliable.

## **Literature Review**

Dietary intakes rich in fruits and vegetables offer a wide range of health benefits to individuals of all ages. MyPyramid for kids and the 2005 Dietary Guidelines recommend children between the ages of 6-11 years consume 1.5 cups of fruit and 2.5 cups of vegetables per day, based on a 1,800 kilocalorie diet (1). General guidelines for children ages 2-18 years vary from 1 cup of fruit and 1 cup of vegetables to 2.5 cups of fruit and 4 cups of vegetables, based on energy levels ranging from 1,000 to 3,200 kilocalories per day (1).

The American population does not meet the US Dietary Guidelines for fruit and vegetable consumption, which has led to the examination of trends in fruit and vegetable consumption in child, adolescent, and adult populations. Occurrence of more family meals has been associated with a higher fruit and vegetable intake due to a variety of potential factors. The modeling and reinforcement of healthy eating habits, positive parenting styles, increased availability of fruit and vegetables, and socioeconomic factors have all been associated with increased frequency of family meals.

Larson et al reported results of fruit and vegetable intakes measured in participants of Project EAT (Eating among Teens). Data were collected from 944 male and 1,161 female adolescents (2). Results indicated the average daily intake of fruit and vegetables decreased from early to mid adolescence by 0.7 servings, and from mid to late adolescence by 0.6 servings per day (2). Between the years of 1999-2004, average male adolescent fruit and vegetable consumption declined 0.4 servings per day, compared to an average decline of 0.7 servings per day for adolescent females (2). Adolescent fruit and vegetable consumption is believed to be influenced by individual factors, social and environmental factors, physical environment, and macrosystems (3).

Fox et al assessed the diets of 3,022 infants and toddlers (4). Fox et al found that 18-33 percent of infants and toddlers between the ages of 7-24 months consumed no vegetable servings in a 24-hour period. These authors reported that 18-23 percent of toddlers over

the age of 12 months consumed zero servings of vegetables in a day (4). By 15-18 months, the most common vegetable consumed was French fries (4). In addition, Fox et al found consumption of desserts, sweetened beverages, and salty snacks to be high, with 91 percent of toddlers (ages 19-24 months) consuming one or more items in this category per day (4).

In two separate studies, Cooke et al (5) and Hoerr et al (6) found mother's lifestyle choices influenced toddlers between the ages of 11-15 months. Cooke et al concluded that higher socioeconomic status was positively associated with increased fruit and vegetable consumption in toddlers, children, and adults (5). Analysis of questionnaires completed by 564 primary caregivers established that the mother's education level, devotion to breast-feeding, consumption of fruit and vegetables, and early introduction of a variety of food groups to the child were positively associated with fruit and vegetable consumption (5). Similarly, Hoerr et al (6) found that fruit and vegetable intakes correlated with a mother's attitude toward mealtime quality (eating in an enjoyable environment) and having the child remain seated while consuming the meal.

The diets of toddlers, children, and adolescents are thought to be strongly influenced by family. Gibson et al (7) found children and adolescent diets are influenced by the mother's food consumption patterns, education level, and attitudes towards different types of foods. In the United Kingdom, 92 mothers and their children, ages 9-11 years (n= 48 female, n= 44 male) completed and returned dietary surveys which were designed to compare the mother's diet quality to the child's diet quality (7). Questionnaires assessed socioeconomic status, mother's education level, nutrition knowledge and health/diet beliefs of the mother and child (7). Gibson et al concluded, on average, the diets of the child(ren) were related to the mother's attitude towards fruits, vegetables, and nutrient dense foods. The child's attitude concerning fruit, vegetables, and sweet consumption is therefore thought to be linked to the mother's attitude concerning fruit, vegetables, and sweet consumption (5, 6, and 7).



Patrick et al concluded that parenting styles also influence children's fruit and vegetable intakes. Patrick et al found authoritative parenting styles represent a balance between authoritarian and permissive styles of parenting, such that the child was encouraged to try new foods through the promotion of healthy eating habits modeled by the parent (8). Patrick et al also found that when the child was encouraged to consume new foods, as with authoritative parenting styles, food neophobia occurred less frequently when compared with other parenting styles (8). Furthermore, authoritative feeding was found to be linked to fruit and vegetable consumption due to availability of foods (8). Data also support a decrease in fruit and vegetables when permissive parenting styles are practiced. Permissive parenting may lead to "nutritional neglect," due to the child's control of his/her own food choice and amount of intake (8).

A study by Wind et al linked fruit and vegetable availability to better consumption of fruits and vegetables. A cross-sectional study conducted in Belgian-Flemish and Dutch pediatric populations assessed fruit and vegetable intakes and the social environment in 2,466 school-aged children (9). The research showed that children's perceived availability of foods was an important determinate of fruit and vegetable intake. For instance, when fruits and vegetables were widely perceived as available in a home environment, the child reported more exposure to modeling behaviors which were positively associated with consumption of fruits and vegetables (9).

Hanson et al (10) also linked fruit and vegetable availability to higher consumption of fruits and vegetables. A cross-sectional analysis conducted through Project EAT assessed home food environment, food habits, and weight-related behaviors (10). Results showed a positive association between female fruit and vegetable intakes ( $p < .01$ ) and home availability of fruits and vegetables (10). In addition, results confirmed findings by Wind et al (9) which suggested higher household fruit and vegetable availability improves consumption of fruits and vegetables among adolescents (9). Interventions in the home environment, promoting methods to improve fruit and vegetable availability would likely enhance fruit and vegetable consumption (10, 9).

Birch et al examined the behaviors which shape food preferences to determine environmental influences which alter food intake (11). Specifically, Birch et al examined the difference in child energy regulation and self-control due to child-feeding practices. Birch et al concluded children's acceptance of a variety of food groups is often less when parents seek to control when, where, and how much of a type of food the child consumes (11). In addition, Birch et al found lower energy regulation and self-control in children whose parents sought to control what and how much food the child consumed (11). Birch et al concluded that parental eating habits and environment shape children's consumption through foods the parent makes available and accessible. In addition, Birch et al found the child's preference to available food, as well as the direct food modeling of parents, siblings, and peers, influenced fruit and vegetable consumption (11).

A study conducted by Fulkerson et al linked family mealtime togetherness to better nutritional intake of children and adolescents (12). Adolescents participating in Project EAT, and their primary caregivers, described family meals as a positive experience. The positive feeling associated with family meals was linked to family meal frequency (12).

Wind et al also found strong correlations between social and personal factors and fruit and vegetable intakes (9). For example, when children live in a positive home environment, parental-modeling is more likely to occur. If children observe parents consuming available fruit and vegetables, they are more likely to engage in similar behaviors (9). Thus, Wind et al sought to establish a link between modeling, fruit and vegetable availability, and fruit and vegetable consumption (9). Additionally, Cooke (5) encouraged parents to model fruit and vegetable consumption habits, with the end goal that the child would imitate the fruit and vegetable consumption of their parents (5).

Several researchers have concluded that family meals are associated with improved dietary intake (3). Hanson et al concluded more frequent family meals inside the home improve nutritional intake due to a lower use of quick, less-healthy meal options (12). Larson et al found family meals were correlated positively with consumption of fruits, vegetables, fiber, folate and Vitamin A, as well as negatively with fat (2). In addition, Fox et al advised a family-based (parent and child consuming food together) approach during meals due to the observation that family food choices often reinforce healthy eating habits (4).

A study conducted by Johnson et al in conjunction with, the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), found that slogans promoting family meals were correlated with increased frequency of family meals (13). Slogans used to promote family meals were: “Eating together strengthens the family,” “Eating together helps children eat better,” and “There are many benefits to eating together as a family (13).” After 6 months of education, 98% of subjects reported enjoyment while eating family meals (13). In addition, the average frequency rate of family meals increased 2% among participating subjects (13). Promoting family meals may increase frequency of family meals which may lead to increased fruit and vegetable consumption in child, adolescent, and adult populations.

While research continues to expand upon the topic of family meals, many factors may be associated with family meal frequency and fruit and vegetable consumption. These factors include parental modeling, authoritative parenting, availability of fruits and vegetables, educational interventions promoting family meals, and increased frequency of family meals.

Thus, the objective of this study was to aid in the development of an assessment tool to evaluate the Indiana State Nutrition Action Plan (SNAP). An objective of SNAP is to promote family meals to increase fruit and vegetable intake among the participants served by WIC, EFNEP and FNP. The tool measures family meal frequency, characteristics of

the mealtime environment, television viewing during meals, and fruit and vegetable intake. The assessment tool was created to be brief, no more than one page in length, accurate, and reliable.

## **Methods/Methodology**

### **Subjects and recruitment**

Data were collected from four sample populations. Participation was voluntary and consent was obtained in compliance with the Purdue University Institutional Review Board guidelines. All tools and protocols were approved by the Committee on the Use of Human Research Subjects. Audience descriptions of sample populations can be found in Appendix A.

#### *Sample 1; Pilot testing of the questionnaire sample*

The first pilot sample consisted of participants in WIC, EFNEP, and FNP.

Participants in Sample 1 were a convenience sample of individuals participating in WIC, EFNEP, or FNP. Staff from these programs were asked to select one week of their choice between July 24 and August 11, 2006, to recruit program participants. During the selected week staff were to administer the pilot questionnaire to participants as part of their routine program procedure (individual counseling, in home visits, or classes) and incorporate the activity as part of a discussion about family meals. Participants were asked if they would like to provide input into the development of a questionnaire about family meals, provide their opinions about a family meal handout, and/or select a slogan promoting family meals. A total of 144 individuals participated in this sample.

#### *Sample 2; Test-retest sample*

The second sample was taken through Purdue's Child Development Laboratory and the Ben & Maxine Miller Child Learning Center, facilities providing child care services for children under the age of 5 years. Parents of children were surveyed from October 21-November 18, 2006. A total of 20 individuals participated in this sample.

#### *Sample 3; Focus group*

The third sample was comprised of professionals and paraprofessionals representing the three targeted programs SNAP, which are WIC, EFNEP, and FNP. They were comprised of registered dietitians, nutritionists, and trained paraprofessionals. These staff work with

clients in individual or group settings within clinics and at home visits. This sample included 7 women participants.

#### *Sample 4: Open-ended interviews*

The fourth sample was comprised of professionals and paraprofessionals representing the three targeted programs of SNAP, which are WIC, EFNEP, and FNP. Participants were interviewed during the months of January and February, 2009. This sample were comprised of registered dietitians, nutritionists, and trained paraprofessionals. Staff members who implemented family meal education for the SNAP project were invited to provide their input voluntarily. Supervisors provided contact information to call or meet with program staff. Recruitment occurred primarily over the phone. Staff were interviewed and observed. When interviewed, staff were provided with information concerning the SNAP project and development of the assessment tool. This sample included 3 women participants.

#### **Development of assessment tool and pilot testing in Samples 1 and 2**

The development of the assessment tool began in 2006 under the direction of the Indiana SNAP program committee to evaluate family meal frequency, the quality of the family meal environment, and fruit and vegetable intake. Former honors student, Emily Hutson, performed the initial data collection and analysis. There were three modes of administration: The educator asked the questions orally and filled out the survey for the participant, the participant filled out the survey independently, or the educator explained the questions while the participant filled out the survey.

The original tool found in Appendix B was four pages and was derived from validated assessments used in family meal research and intake questionnaires used by WIC, EFNEP or FNP programs. The questions and formats were modified in some cases to meet the needs of this project. Three questions asked about family meal frequency, in which the third question assessed frequency and environment of family meals in a

pictorial format; four questions asked about the family meal environment; and three addressed fruit and vegetable intake. This data was collected from Sample 1 and Sample 2.

### **Administration of Questionnaires**

#### *Sample 1; Pilot testing questionnaire sample*

During the selected week, staff members were to administer the pilot questionnaire to participants as part of the routine program procedures (individual counseling, in home visits, or classes) and incorporate the activity as part of a discussion about family meals. Participants were asked if would like to provide input into the development of a questionnaire about family meals, provide their opinions about a handout about family meals, and/or select a slogan for promoting family meals. The final sample included 144 participants.

#### *Sample 2; Test-retest sample*

This sample was invited to participate and completed the survey two times, one week apart. Parents were invited to participate with a letter left in the parents' mailboxes. The first survey was distributed in a parent's mailbox once a completed consent form was received. A second survey was placed in the same parents' mailboxes one week later. In both cases, the survey was self-administered. The final sample included 20 parents.

### **Current development and evaluation of assessment tool**

The SNAP committee determined that the final tool should not exceed one page for the measurement of the objective variables. Therefore, a subset of the original questions was to be selected to reduce the pages of assessment questions from four to one while selecting the questions which best measured family meal frequency, characteristics of the family meal environment, and fruit and vegetable intake and could be used to evaluate the impact of family meal education.

Statistical tests using SPSS 16.0 for Windows were used and included principal component analysis (PCA), paired t-tests and Pearson Correlation Coefficients, and separate linear regression. The findings of these analyses resulted in the development of a final assessment tool which effectively measures the frequency of family meals, characteristics of mealtime environment, and fruit and vegetable consumption to be administered before and after family meal education. Specific to this honors project, questions were analyzed that were related to frequency of family meals, positive family mealtime environment, and fruit and vegetable consumption.

### **Development and modification of cover information page, focus group and open-ended interview delivery**

To determine the efficiency and effectiveness of the information page, which is to be administrated by the program staff, the assessment tool was revised and edited several times throughout all stages of this project. A combination of focus groups and interviews with paraprofessional and professional staff within WIC, EFNEP and FNP was used to determine if the tool was easy to understand and administer as well as an effective way to collect data and evaluate SNAP.

Samples 3 and 4 had the opportunity to provide input on the final version of the cover information page of the assessment tool. The purpose of this page is for collecting participant demographic and educational intervention information. The original version of this page was developed by the SNAP committee comprised of representatives of the Indiana Department of Education, WIC, EFNEP, FNP, and Purdue's Foods and Nutrition Department, based on results of a pilot test of the document in summer 2006. A copy of the first page of the assessment tool is in Appendix C.

The first opportunity for input was December 4, 2008 when the advisory board for EFNEP and FNP met in Marion County. This meeting was led by Angie Abbott, state EFNEP/FNP director. Assisting her in the focus group discussion of the tool were Honors Students Chelsea Kingston and Rebecca Howden. Staff members of EFNEP and



FNP were invited to volunteer to be interviewed in person and practice administering the tool with participants and provide feedback about ease of use and effectiveness. Staff shared their findings and/or allowed observation of participant encounters.

Based on the advisory board's input, further modifications to the first page of the assessment tool were made. Modifications included the addition of demographic questions within Section A, reformatting Section B to graphically determine family meal education provided and rewording this section. Additional opportunities for input followed this modification during January and February 2009.

Results of these interviews and observations were summarized and shared with the State SNAP committee via a conference call to determine the final wording and layout of the assessment tool.

## **Data Analysis**

All quantitative variables were tested for adhering to a normal distribution and no variables needed transformation. The raw data responses for statements related to family meal frequency and meal environment on the questionnaire used in pilot testing were summed by subscale and then an average response was calculated for each subscale. For example, the responses were coded as 1 to 4 or 1 to 5. Where, necessary, the responses were reverse coded to maintain consistency in direction of the responses. Therefore, a 5 statement subscale summary would be the sum of the responses to the 5 statements divided by 5. The subscales represent an average response from several statements; therefore, a subscale was calculated if all statements within a subscale were complete. All quantitative variables were assessed for adhering to a normal distribution and no transformations were needed. As a measure of internal consistency among the psychosocial factors in the pilot testing questionnaire, principal component analysis (PCA) was completed. A higher Cronbach's alpha value from the PCA indicates better internal consistency. Values between 0.7 and 0.9 are considered most desirable. This analysis was completed to ascertain the strength of using multiple statements compared to one or two statements. For the test-retest reliability of the questionnaires, paired-t tests were done and Pearson correlation coefficients.

The response scale for eating meals together, i.e., breakfast, lunch, and dinner, was examined as never, 1-2 days, 3-4 days, 5-6 days, and 7 days. Alternatively, this was recategorized as never, 1-4 days, 5-6 days, and 7 days; and never to 2 days, 3-6 days, and 7 days. The response scale to eat together as a family was also recategorized as rarely to 2 times/week, 3-4 times/week, and great than 5 times/week. For estimates of offered and consumed fruit and vegetable intake, responses were maintained as quantitative fields, i.e., 0 to 5 or more times per day. For testing construct validation of the association between the outcomes of fruit and vegetable offering and consumption and the exposure of positive family mealtime environment, one-way analysis of variance was used. Statistical significance was set at  $p \leq 0.05$ .

## Results

The pilot testing of Sample 1 consisted of 147 participants. Three questionnaires were completely blank and therefore were not included in the final analysis. The final pilot sample included 144 subjects. The test-retest sample (Sample 2) included 20 adults that completed two questionnaires that were used for reliability testing. The focus group of Sample 3 consisted of seven paraprofessionals and professionals to evaluate the administrative ease and use of the cover page of the assessment tool. Three open-ended interviews were conducted through Sample 4, which provided indirect evaluation of focus group results.

Table 1 shows the number of blank responses of each question in the questionnaire. The percentage of blank responses ranged from a low of 1% to a high of 33%. The failure rate for question 7 was reported by the highest and lowest failure rates for the 21 possible response boxes (see question 7 in Appendix B).

Reliability of each question in the assessment was tested through Sample 2 (see Table 2). The descriptive statistics of test-retest reliability of family meal frequency (questions 1 and 2), mealtime environment (questions 3b-d, 4a and 5a) and fruit and vegetable consumption questions (questions 8, 9, and 10) can be found in Table 2. Correlation coefficients were significant ( $p < .05$  or  $p < .01$ ) for each of these questions, excluding questions 3c, 4a, and 5a.

Questions regarding family meal frequency included questions 1 and 2. Pearson Correlation Coefficients for question 1 were highly significant ( $p < .001$  or  $p < .01$ ). Paired t-test results for question 1 were not significant with p-values above .05, indicating consistency of answers found through test-retest reliability. Paired t-test results for question 2 were significant ( $p = .049$ ), indicating less desirable test-retest reliability.

Questions regarding mealtime environment were 3b, 3c, 3d, 4a and 5a. Test-retest reliability of these questions was measured (see Table 2). Correlation coefficients results

of questions 3b and 3d were significant ( $p < .001$ ) whereas results of 3c, 4a, and 5a were not significant. Paired t-tests results for 3b-d, 4a and 5a were not significant ( $p > .05$ ) which was desirable for this analysis. Questions 3b and 3d were strongly reliable ( $p < .001$ ) when compared to the remaining mealtime environment questions.

Questions regarding fruit and vegetable consumption were 8, 9, and 10. Reliability tests show Correlation Coefficients for questions 8, 9, and 10 were significant ( $p < .05$ ) (see Table 2). Paired t-test results for question 8 were not significant ( $p > .05$ ), which was desirable for this analysis. Reliability tests show that Paired t-test values for questions 10a and 10b had the strongest non-significant results ( $p = 1.00$ ), which was desirable for this analysis (Table 2).

ANOVA analysis was used to compare the relationship of questions 1 and 2 to questions 9 and 10 (see Table 3). Questions 1a, 1b, 1c, and question 1, regroupings 1 and 2 were evaluated (see Table 3). Question 1, regroup 1, responses were: Never, 1-4 days/week, 5-6 days/week, and 7 days/week. Question 1, regroup 2, responses were: Never-2 days/week, 3-6 days/week, and 7 days/week. Results of question 1a were not significant when compared to questions 9 and 10 (see Table 3). The results of questions 1b were significant ( $p < .05$ ) when compared to questions 9 and 10 (consumption of fruit, vegetable, and juice), but were not significant when compared to question 10 (consumption of fruits and vegetables) (see Table 3). Results of question 1c were significant with questions 9 and 10 (offerings and consumption of fruits, vegetables, and juices), but were not significant for offerings and consumption of fruits and vegetables. Results of question 1, regroupings 1 and 2 were significant ( $p < .05$ ) when compared to questions 9 and 10.

ANOVA analysis was used to compare the relationship of questions 1 and 2 to questions 9 and 10 (see Table 4). Questions 1, 2, and 2 trio (collapsed to three frequencies:  $\leq 2$  times/ week, 3-4 times/ week, and  $\geq 5$  times/ week). Results of question 1a were not significant when compared to questions 9 and 10 (see Table 4). Results of questions 1b

and 1c were significant ( $p < .05$ ) when compared to questions 9 and 10 (see Table 4). Results of question 2 were also significant ( $p < .05$ ) compared to questions 9 and 10, especially when using question 2 trio (collapsed responses) (see Table 4).

To better analyze questions 3 and 5a several scales were composed, for the purpose of measuring positive family mealtime environment. Principal Component Analysis (PCA) was then performed to determine which scale best measured the aspect of positive family mealtime environment (see Tables 5 and 6). Pearson Correlation Coefficients were derived, where negative numbers indicate a more positive outcome. Cronbach's alpha analysis (see Table 5) was performed to determine which scales correlated best together (the higher the number, the better the questions fit together). Each scale yielded a Chronbach alpha score of 0.69. Specifically, the B scale was chosen to assess meal environment not including questions inquiring about television viewing (questions 3b, 3c, and 3d).

ANOVA analysis was used to compare questions 1c, 2, and 5a to questions 9 and 10 (see Table 7). Results of question 1c, 2, and 5a were significant ( $p < .05$ ) when compared with questions 9 and 10, with the strongest significance shown in questions 9sum and 10sum (see Table 7). Post hoc analysis was then used to compare the B scale to questions 9 and 10 (see Table 7). Pearson Correlation Coefficients were highly significant ( $p < .001$ ) when comparing the B scale to questions 9 and 10.

#### **Focus group (Sample 3) and open-ended interviews (Sample 4) results:**

During the focus group and open-ended interviews, the following information was obtained from participants. Collectively, participants suggested many changes in wording, page layout, design and gave several ideas as to how the tool could be improved. Specific changes to the tool included marking the cover page with the phrase "staff use only" and include "mode of administration" section on both the pre and post-tests. In addition, paraprofessionals indicated that the title of Part B was confusing and labeling when the pre and post-tests were to occur would provide clarification. The age

of each child in the family, as well as the ethnicities of all children and caregivers residing in each household was added to the tool as requested by paraprofessionals.

**Table 1.** Description of family meal assessment questions by type of measure and number of blank responses among Sample 1, pilot test (n=144)

Type of Family Meal Question	Description of Question	Question Number	Number Blank	% Blank
Frequency	Eat breakfast together	1a	8	5.6
	Eat lunch together	1b	10	6.9
	Eat dinner together	1c	7	4.9
	Eat together as family	2	1	0.7
Mealtime Environment	TV during meals	3a	6	4.2
	Enjoy eating with children	3b	6	4.2
	Sit with children while eating	3c	6	4.2
	Plan ahead for family meals	3d	5	3.5
	Importance of eating 1 family meal	4a	18	12.5
	Watch TV while eating	4b	20	13.9
	Sit and eat meals with child	5a	21	14.6
	Child watches TV while eating	5b	22	15.3
	TV on during meals	6	19	13.2
Frequency and Environment	Child eats meals in following ways	7	Minimum: 44	30.6
	(depicted pictorially)	7	Maximum: 47	32.6
Fruit and Vegetable Consumption	Offer 5 fruit and vegetable servings per day	8a	15	11.1
	Child eats 5 fruit and vegetable servings per day	8b		12.5
	Offer fruits to child	9a	16	11.1
	Offer vegetables to child	9b	16	11.1
	Offer 100% fruit or vegetable juice to child	9c	15	10.4
	Child eats fruits	10a	21	14.6
	Child eats vegetables	10b	17	11.8
	Child drinks 100% fruit or vegetable juice	10c	17	11.8

**Table 2.** Reliability (test/retest) of responses between two Family Meal questionnaires completed one week apart by parents (n=20) of children (2.5-5 y) participating in a university-run childcare center

Question	Responses					Correlation coefficient <i>r</i> ( <i>p</i> -value)	Paired <i>t</i> -test <i>p</i> -value
1. In the past week, how many days did most of your family living in your house (or at least one adult eating with your children) do the following?							
a) Eat breakfast together	Never	1-2 days	3-4 days	5-6 days	7 days	.648 (<.001)	.110
b) Eat lunch together	Never	1-2 days	3-4 days	5-6 days	7 days	.824 (<.001)	1.000
c) Eat dinner together	Never	1-2 days	3-4 days	5-6 days	7 days	.579 (<.01)	.330
2. How often do you eat together as a family (or at least one adult in your household sits and eats with child(ren))?							
	Rarely or never	1-2 times / week	3-4 times / week	5-6 times / week	Once a day	.534 (<.05)	.049
3. Below are statements about feeding your child. Check the box in each row that describes how often this statement is true.							
b) Do you enjoy eating meals with your children	Always	Usually	Not usually	Never		.762 (<.001)	1.000
c) Do you sit with your children when they eat?	Always	Usually	Not usually	Never		.356, NS	.428
d) Do you plan ahead for family meals?	Always	Usually	Not usually	Never		.759 (<.001)	.330
4. How strongly do you agree with the following statements about mealtime in your family?							
a) It is important that the whole family eat at least one meal a day together	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree		.225, NS	.135
5. Below are statements about feeding your child. Circle the letter that tells how often you do what it says.							
a) I sit down and eat	Almost	Often	Some-times	Rarely	Never	.426, NS	.267



**Table 2 (Continued).** Reliability (test/retest) of responses between two Family Meal questionnaires completed one week apart by parents (n=20) of children participating in a university-run childcare center

Question	Responses					Correlation coefficient <i>r</i> ( <i>p</i> -value)	Paired <i>t</i> -test <i>p</i> -value
8. Circle the one best answer for each statement:							
a) I <u>offer</u> my child 5 fruit and vegetable servings a day	Rarely or never	Some of the time	About ½ the time	Most of the time	Almost always	.836 (<.001)	.541
b) My child <u>eats</u> 5 fruit and vegetable servings a day	Rarely or never	Some of the time	About ½ the time	Most of the time	Almost always	.870 (<.001)	.267
9. How many times a day do you offer the following foods to your child:							
a) Fruits (fresh, canned, frozen, or dried)	0	1	2	3	4	.821 (<.001)	.171
b) Vegetables (fresh, canned or frozen)	0	1	2	3	4	.474 (<.05)	.527
c) 100% fruit or vegetable juice	0	1	2	3	4	.691 (<.01)	.205
10. How many times a day does your child eat the following foods:							
a) Fruits (fresh, canned, frozen, or dried)	0	1	2	3	4	.830 (<.001)	1.000
b) Vegetables (fresh, canned or frozen)	0	1	2	3	4	.648 (<.01)	1.000
c) 100% fruit or vegetable juice	0	1	2	3	4	.747 (<.001)	.331

**Table 3.** The relationship of parent self-report of frequency of family meals and offerings and consumption of fruit and vegetables among children (0-12 y) participating in WIC<sup>1</sup>, FNP<sup>2</sup> and EFNEP<sup>3</sup> (n=144).

Family Meal Frequency Question	Responses	Parents' Self Report:			
		Times per day offered to child		Times per day consumed by child	
		Fruits, Vegetables, and Juices	Fruits and Vegetables	Fruits, Vegetables, and Juices	Fruits and Vegetables
		←————— Mean (standard deviation) —————→			
1a) Eat breakfast together					
	Never	7.0(4.0) (n=22)	4.6(2.7) (n=22)	6.8(4.1) (n=21)	4.4(2.7) (n=21)
	1-2 days	8.8(3.3) (n=23)	5.7(2.5) (n=23)	8.0(2.8) (n=22)	5.1(2.4) (n=22)
	3-4 days	9.1(3.0) (n=21)	4.5(3.4) (n=21)	8.0(3.1) (n=20)	4.7(2.6) (n=20)
	5-6 days	8.5(3.2) (n=15)	5.5(2.4) (n=15)	7.2(3.0) (n=15)	4.7(2.4) (n=15)
	7 days	9.3(3.8) (n=42)	6.2(2.6) (n=42)	9.0(3.6) (n=41)	5.8(2.6) (n=41)
	p-value	NS	NS	NS	NS
1b) Eat lunch together					
	Never	4.6 (3.7) (n=12)	3.2(2.6) (n=12)	4.8(3.3) (n=11)	3.2(2.1) (n=11)
	1-2 days	8.3(4.2) (n=23)	5.2(2.8) (n=23)	8.0(3.8) (n=22)	4.9(2.9) (n=22)
	3-4 days	10.5(2.7) (n=22)	6.9 (2.3) (n=22)	9.0(3.0) (n=21)	5.9(2.3) (n=21)
	5-6 days	9.0(2.1) (n=20)	5.6(1.8) (n=20)	7.8(2.3) (n=19)	4.9(2.3) (n=19)
	7 days	8.8(3.4) (n=45)	5.8(2.4) (n=45)	8.3(3.5) (n=45)	5.3(2.6) (n=45)
	p-value	<.001	<.05	<.05	NS

**Table 3.** The relationship of parent self-report of frequency of family meals and offerings and consumption of fruit and vegetables among children (0-12 y) participating in WIC<sup>1</sup>, FNP<sup>2</sup> and EFNEP<sup>3</sup> (n=144).

		Parents' Self Report:			
		Times per day offered to child		Times per day consumed by child	
Family Meal Frequency Question	Responses	Fruits, Vegetables, and Juices	Fruits and Vegetables	Fruits, Vegetables, and Juices	Fruits and Vegetables
Mean (standard deviation)					
1c) Eat dinner together					
	Never	4.8(3.4) (n=10)	3.1(2.4) (n=10)	4.5(3.2) (n=10)	3.0(2.3) (n=10)
	1-2 days	8.3(4.6) (n=8)	5.0(3.3) (n=8)	7.9(3.7) (n=7)	4.7(2.9) (n=7)
	3-4 days	7.8(3.9) (n=9)	5.6(3.1) (n=9)	6.7(2.8) (n=9)	4.7(2.5) (n=9)
	5-6 days	9.0(3.5) (n=20)	5.6(2.5) (n=20)	8.4(3.3) (n=20)	5.5(2.6) (n=20)
	7 days	9.2(3.3) (n=77)	6.0(2.3) (n=77)	8.5(3.2) (n=74)	5.4(2.4) (n=74)
	p-value	<.05	NS	<.05	NS
1c) Eat dinner together (Regroup 1)					
	Never	4.8(3.4) (n=10)	3.1(2.4) (n=10)	4.5(3.2) (n=10)	3.0(2.3) (n=10)
	1-4 days	8.0(4.1) (n=17)	5.3(3.1) (n=17)	7.2(3.2) (n=16)	4.7(2.6) (n=16)
	5-6 days	9.0(3.5) (n=20)	5.9(2.5) (n=20)	8.4(3.3) (n=20)	4.5(2.6) (n=20)
	7 days	9.2(3.3) (n=77)	6.0(2.3) (n=73)	8.5(3.2) (n=74)	5.4(2.4) (n=74)
	p-value	<.05	<.05	<.05	<.05
1c) Eat dinner together (Regroup 2)					
	Never-2 days	6.3(4.2) (n=18)	3.9(2.9) (n=18)	5.9(3.7) (n=17)	3.7(2.6) (n=17)
	3-6 days	8.6(3.6) (n=29)	5.8(2.7) (n=29)	7.9(3.2) (n=29)	5.2(2.5) (n=29)
	7 days	9.2(3.3) (n=77)	6.0(2.3) (n=77)	8.5(3.2) (n=74)	5.4(2.4) (n=74)
	p-value	<.05	<.05	<.05	<.05

**Table 4.** The association of a variety of family meal measures to parent's (n=20) self-reported offerings and consumption of fruits and vegetables of their children (2.5-5 y)

		Fruit and vegetable intake measures:									
		← Times per day offered <sup>1</sup> :			← Times per day consumed <sup>2</sup> :						
Family Meal Measure		Fruits	Vegetables	Juices	Fruits, Vegetables	Juices	Fruits, Vegetables	Juices	Fruits, Vegetables	Juices	Fruits, Vegetables, Juices
p-value <sup>3</sup> :											
Recall past week for main meals (Q 1) <sup>4</sup> :											
a) Eat breakfast together	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
b) Eat lunch together	.018	.001	.002	.000	.001	.037	.036	.016	.036	.016	NS
c) Eat dinner together	NS	.016	.019	.005	.017	.034	.013	.007	.013	.007	NS
Recall in general eating together (Q 2) <sup>5</sup> :											
Original frequency responses <sup>6</sup>	.025	NS	NS	.007	.012	.036	NS	.008	NS	.008	.040
Collapsed to 3 frequencies <sup>7</sup>	.003	.007	.019	.001	.001	.023	.004	.006	.006	.000	.003

Note:

<sup>1</sup>Based on question 9 (How many times per day do you offer the following foods to your child? Response options: Fruits 0-5 or more, Vegetables 0-5 or more, Juices 0- 5 or more).

<sup>2</sup>Based on question 10 (How many times per day does your child eat the following foods? Response options: Fruits 0-5 or more, Vegetables 0-5 or more, and Juices 0-5 or more).

<sup>3</sup>Based on One-way ANOVA

<sup>4</sup>Based on question 1 (In the past week how many times did you do eat main meals together?) Response options for each main meal together were never, 1-2X/wk, 3-4/X/wk, 5-6X/wk or 7X/wk.

<sup>5</sup>Based on question 2 (How often do you eat together as a family (or at least one adult in your household sits and eats with child(ren) with responses: rarely or never, 1-2 X/wk, 3-4 X/wk 5-6 X/wk, once a day, and 2-3 X/d and Question 2 Trio with responses, rarely or never and 1&2 X/wk, 3-4 X/wk, 5-6 X/wk and 2-3X/d.

<sup>6</sup>Based on question 2. Response options for original frequency: responses in general times eating together were rarely to 1 time per wk, 3-4 times per wk or 5 or more times per wk.

<sup>7</sup>Based on question 2. Response options for collapsed frequencies in general times eating together were less than or equal to 2X/wk, 3-4X/wk, >5X/wk.

Table 5. Positive Family Meal Measures Scales								
Question		Response				Scale		
						B <sup>1</sup>	E <sup>2</sup>	G <sup>3</sup>
Q 3a	Do you usually watch TV during meals?	Always	Usually	Not Usually	Never			
Q3b	Do you enjoy eating meals with your children?	Always	Usually	Not Usually	Never	X	X	X
Q3c	Do you sit with your children when they eat?	Always	Usually	Not Usually	Never	X	X	X
Q3d	Do you plan ahead for family meals?	Always	Usually	Not Usually	Never	X	X	
Q5a	It is important that the while family eat at least one meal a day together.	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree		X	X
Chronbach's Alpha						.69	.69	.69

Note:

<sup>1</sup> Meal environment not including questions inquiring about television viewing

<sup>2</sup> Planning and enjoying meal environment

<sup>3</sup> Enjoying meal without planning meal

<b>Table 6. Positive Family Meal Measures Subscale (B-Scale)</b>
<b>Based on Question 3:</b> Meal environment not including questions inquiring about Television viewing.
<i>Enjoyment of Family Meals</i> (4 point scale; Always, Usually, Not Usually, Never)
<b>3b.</b> Do you enjoy eating meals with your children?
<i>Eating Together as a Family</i> (4 point scale; Always, Usually, Not Usually, Never)
<b>3c.</b> Do you sit with your children when they eat?
<i>Planning for Family Meals</i> (4 point scale; Always, Usually, Not Usually, Never)
<b>3d.</b> Do you plan ahead for family meals?

**Table 7.** The relationship of aspects of family meals to fruit and vegetable offering and consumption among children participating in WIC<sup>1</sup>, EFNEP<sup>2</sup>, and FNP<sup>3</sup>.

Parent's self report:

Meal Characteristics	Times per day offered to child (Q 9)			Times per day consumed by child (Q 10)		
	Fruit, Vegetable, Juice	Fruit, Vegetable	Fruit, Vegetable, Juice	Fruit, Vegetable, Juice	Fruit, Vegetable	Fruit, Vegetable
Frequency of family dinner within the past week. (Q 1c)	Never	4.8 (3.4) n= 10	3.1 (2.4) n= 10	4.5 (3.2) n= 10	3.0 (2.3) n= 10	
	1-4 days	8.0 (4.1) n= 17	5.3 (3.1) n= 17	7.1 (3.2) n= 17	4.7 (2.6) n= 17	
	5-6 days	9.0 (3.5) n= 20	5.9 (2.5) n= 20	8.4 (3.3) n= 20	5.5 (2.6) n= 20	
	7 days	9.2 (3.3) n= 77	5.6 (2.6) n= 77	8.5 (3.3) n= 74	5.4 (2.4) n= 74	
	p-value	.002	.008	.003	.035	
Frequency of eating together as a family. (Q 2)	Never, 1-2 times per week	5.7 (3.7) n= 17	3.6 (2.5) n= 17	5.1 (2.9) n= 17	3.4 (2.1) n= 17	
	3-4 times per week	8.4 (3.7) n= 16	5.5 (2.7) n= 16	7.7 (3.3) n= 15	4.6 (2.9) n= 15	
	Greater than 5 times per week	9.2 (3.3) n= 90	6.0 (2.4) n= 90	8.6 (3.3) n= 87	5.6 (2.5) n= 87	
	p-value	.001	.001	.000	.003	



## **Discussion**

### **Blank response rates**

Based on percentages in Table 1, question 7 was determined too difficult to answer due to number of blank responses. Therefore this question was eliminated prior to final data analysis. Question 7 asked parents to assess the number of times a week their child ate each meal (breakfast, lunch, or dinner) in a variety of ways. Response options included a pictorial and word answers for each sub-question within question 7. The surveys that had totals higher than 21 were considered to be incorrectly answered and are represented in the number of blank responses (see Table 1). Question 7 was modified after pilot 1 to improve the ease of the question (see Appendix B), however the modified version yielded high blank response rates (a range of 30.6-32.6% blank response rates in the pilot sample and 18% failure rate in the test-retest sample). In addition, several participants indicated that this question was too confusing, and there were many that did not fill it out at all.

Questions 8 through 10 may have had high blank response rate due to the fact that they were on the last page. In addition, Questions 1 through 3 all had the smallest blank response rates, which provides even more justification to the concept of narrowing the assessment tool down to one page of questions, because these rates may have been a result of these questions appearing on the first page.

### **Questions related to family meal frequency**

Questions 1, 2, and 7 inquired about frequency of family meals. When choosing between questions 1 and 2, results of both questions were statistically significant, as found through test-retest reliability. Table 2 results show Pearson Correlation Coefficients for question 1 were significant ( $p < .001$  or  $p < .01$ ) for breakfast, lunch, and dinner. Correlation Coefficients were also significant ( $p < .05$ ) for question 2. Paired t-test results for question 1 were not significant, which was desirable for this analysis, indicating strong test-retest reliability when compared to question 2 ( $p < .05$ ). Question 1 also inquired about meal specificity, which was not included in question 2. Questions 1b and 1c produced significant results as deemed through ANOVA analysis. Table 3 shows regroupings of



question 1. Both results of regroup 1 and 2 were significant ( $p < .05$ ). Regroupings were desirable in comparison to fruit and vegetable consumption due to the increased number of subjects per regrouping analysis.

Therefore, based on test-retest reliability, Correlation Coefficients, Paired t-test values, and meal specificity question 1 is considered optimal for SNAP implementation.

### **Questions regarding family meal environment**

Questions 3, 4, 5, and 6 assessed mealtime environment. Further analysis of question 4 was not completed based on non-significant Correlation Coefficient results and t-test results (see Table 2). Questions 3a, 4b, 5b, and 6 specifically measured television viewing during meals and are not included in the scope of this honors project and can be found in Rebecca Howden's honors paper (14).

Specific to question 3, a scale was composed, and Principal Component Analysis (PCA) was performed to explain variation between psychosocial factors in the questionnaire. Table 5 shows the Positive Family Meal Measures Scales. These scales were composed using the PCA technique of "dimension-reduction," illustrating variation using fewer concepts. To accomplish this, the B scale was comprised of three questions (3b, 3c, and 3d), which measures positive family mealtime experience not including questions inquiring about television viewing.

This PCA specifically looked at a positive family meal environment in relation to fruit and vegetable consumption. Three scales examined fruit and vegetable consumption and mealtime environment, as shown in Tables 5 and 6. Four additional scales concerning television viewing can be found in Rebecca Howden's honors paper (14).

Scales were created by grouping survey questions together based on the aspect of the study they measured. Cronbach's alpha analysis was then run to determine which scales correlated best together (the higher the number, the better the questions fit together).

Thus, specific scales were formed and chosen based on the Chronbach alpha score of .69, which was consistent among each of the three scales.

Once each scale was formed, it was compared to questions 9 (Times per day fruits and vegetables offered to child) and 10 (Times per day fruits and vegetables consumed by child), which measured fruit, vegetable, and juice consumption through PCA analysis. Through this analysis, Pearson's Correlation Coefficients were derived. The results which show a negative number indicate a more positive family meal environment which correlates to increased fruit and vegetable consumption.

Results of comparing the B scale to the first concept grouping of fruit and vegetable questions (question 9a: Times per day offered to child and fruit, vegetable, and juice) show 38% variance. The second concept grouping of fruit and vegetable questions (question 9a: Times per day offered to child and fruit/vegetable) indicates 35% variance. The third concept grouping of fruit and vegetable questions (question 10b: Times per day consumed by child and fruit, vegetable, and juice) shows 36% variance. The fourth concept grouping (question 10b: Times per day consumed by child and fruit/vegetable) shows 32% variance.

### **Questions relating to fruit and vegetable consumption**

Questions regarding fruit and vegetable consumption included questions 8, 9, and 10. To evaluate the ability of these questions to predict fruit and vegetable consumption, ANOVA analysis was used to compare the first family meal frequency questions to 8, 9, 10, 9sum and 10sum. When comparing question 8 to family meal frequency question 1, the results were not significant and further analysis was not completed.

In regards to choosing between questions 9 and 10, statistical results did not clearly indicate one over the other. Both questions 9 and 10 showed significant results as indicated by Pearson Correlation Coefficients. However, test-retest reliability results of paired t-tests concluded non-significant results ( $p > .05$ ), closer to 1.0, for question 10 which indicates preference over question 9.

Questions 9 and 10 both included measures of offerings and consumption of fruit and vegetable juice. Measuring fruit and vegetable consumption with 100% juice is oftentimes problematic due to the fact that percent guidelines for fruit and vegetable juice are not followed. Thus, parents may over-report fruit and vegetables based on increased juice offerings and consumption. Question 10 was deemed optimal due to the fact that the parents would not always be the caregiver offering the fruit, vegetable, or 100 % juice. It was concluded that using the phrase of “child eats” rather than may prove beneficial to better assess fruit and vegetable consumption. Therefore, based on test-retest reliability, Pearson Correlation Coefficients, Paired t-test results, and due to question wording that may result in higher accuracy, question 10 was recommended for implementation to the SNAP committee.

Based on these findings, a final assessment tool was developed. The SNAP committee requested that the tool be limited to one page for measuring family meal frequency, mealtime environment, and fruit and vegetable consumption. Questions 1, 3, and 10 were recommended to the SNAP committee and further approved for implementation. These questions collect the desired data concerning family meal frequency including the number of times a family eats breakfast, lunch, and dinner together. They assess many aspects of family meal quality such as television viewing during meals, whether meals are planned ahead of time, whether parents sit with their children, and mealtime enjoyment.

## **Modifications of the Cover Page**

### **Focus group responses**

The cover page of the assessment tool (see Appendix C) was first presented to a focus group, comprised of members of Sample 3. Questions 1-9 (see Appendix D) were asked to this group. During this focus group, paraprofessionals indicated the tool would be efficient in collecting the desired information, and also gave several ideas of how it could be improved. They first indicated that it was not clear whether the client should complete this page, or the staff member, and therefore suggested that the cover page be clearly marked with the phrase “staff use only.” In addition, they felt as though it might be beneficial to include the “mode of administration” section on both the pre and post tests. Again, these sections should be clearly labeled as “staff use only.” They also indicated that the font was readable, but they would prefer it to be larger if possible.

One point of confusion for the focus group members was they felt it was unclear if the post-test was to be completed the same day as the pretest and the blanks of the pre and post-test should be incorporated into the cover page. They also indicated that the title of Part B “Family Meal Education between pretest and posttest: Check ALL that apply” was confusing in regards to the time frames of asking goals. They suggested clarifying when the pretest and post-test would occur, whether it would be the same day as the lesson, or in a follow up appointment.

They also indicated several small changes regarding the wording of the cover page that would improve its efficiency. Paraprofessionals felt if the wording of the cover page was changed to reflect handout distribution status (if handout was given, not given, or an additional family meal education tool was used) the assessment tool would adequately and accurately describe use of the handout. Additionally, in regards to the types of family meal education distributed, they suggested to include an “Other” option for those who did not provide education in one of the ways already listed. Finally, under the “Family Meal Goal-Setting” section, they suggested to change the label of “good places” to something

more along the lines of “location.” They felt as though using the word “good” may be confusing as it may raise the question of what is a “good place” versus a “bad place”.

### **Open ended interview responses**

#### **Interview #1**

After the focus group, the suggested changes were made, and Revision 1 of the cover page (see Appendix C) was presented during an interview with a WIC employee, who was a part of Sample 4. Questions 1-11 (see Appendix D) were asked. This staff member had several suggestions in regards to the cover page. She first suggested that it would be beneficial to relocate the phrase “Staff use only” directly under the cover page title to ensure that it would be seen by the person administering the assessment tool. In regards to collecting information about the clients, she thought it would be advantageous to learn the age of each child in the family, as well as the ethnicities of the children and the caregivers.

In regards to the pre and post test pages, she thought that it would be better to put a text box around the staff-administered questions rather than a shaded box due to the quality of the text after copies had been made. She also indicated the need to ask if a different person was completing the post-test, as in her program, it is different caregivers come in at different times, so it would be important to know if the person completing the post-test is the same person who received the family meal education.

In regards to the assessment tool’s use at WIC, she indicated the importance of setting up an alert on client folders to remind staff members to complete the post-test, as it will be administered several months after the pretest. The staff member indicated implementation of tool would require little training among WIC staff, and would likely take less than 30 minutes.

## **Interview #2**

Revision 1 of the cover page (see Appendix C) was presented during an interview with an FNP employee, who was also a part of Sample 4. Questions 1-11 (see Appendix D) were asked. Her first recommendation was that it would be beneficial to relocate “Staff use only” to a more visible location on the tool. In regards to the font sizes, she found them to be readable, but thought that there might be too much variety in the selection of sizes, and thought that just a few should be used.

With the questions, she thought that it would be appropriate to ask the ethnicity of the participant, but suggested to provide a list of options rather than having an open ended question. In addition, she also felt as though “Section A.” needed a heading, and that perhaps the line that included the pretest and date could be moved to the heading of this section.

In regards to the practical administration of the tool, she indicated that it might be beneficial to have several guidelines regarding when the pretest, education, and post-test should be administered. She expressed her concern with the fact that the family meal lesson is the last lesson in the curriculum and it would therefore be difficult to follow up with the post-test. She indicated that little training would be needed to implement the tool.

## **Interview #3**

After interview #2, the suggested changes were made, and Revision 2 of the cover page (see Appendix C) was presented during an interview with an FNP employee, who was also a part of Sample 4. Questions 1-11 (see Appendix D) were asked. This staff member had several suggestions in regards to the cover page. The first few suggestions regarded data collection in “Section A.” she first of all thought this section was a little cramped and that it would perhaps be beneficial to space the lines out slightly. To aid us in collecting information about ethnicity, she provided us with a list of options that are used by a currently existing FNP survey. When collecting information about age, she

expressed that it may be beneficial to provide a range of ages to select from, rather than a blank space, due to the fact that listing ages may take more room than we provided, especially for children less than one year.

The only other improvement she indicated could be made was in the “Family Meal Education” section. She suggested increasing the amount of space for staff members to complete the “Other” response if the type of education is not listed on the form. She indicated the tool was straight forward and little training would be needed to implement the tool within the FNP program.

Based on these responses, Revision 3, the final assessment tool, (see Appendix C) was created and approved by the SNAP committee in April 2009.

**Effectiveness**

The effectiveness of the tool to assess the frequency of family meals, characteristics of mealtime environment, and fruit and vegetable consumption among families receiving services from WIC, EFNEP and FNP is yet to be determined. The revised tool does adequately collect the desired information from target populations, however further analysis of effectiveness is warranted.

Based on completed data analysis from the two initial pilot tests, the assessment tool is expected to accurately and reliably measure fruit and vegetable consumption, frequency of family meals, and positive mealtime environment. However, for this tool to be truly reliable it must show progress after successful intervention. Therefore, continued analysis of the revised assessment tool along with the educational handout and/or other resources will verify the effectiveness of the selected questions suggested for SNAP implementation.

**Limitations of the study**

The research done for this project may be limited due to several factors. First, Samples 1 and 2 were convenience samples. Second, Sample 2 had only 20 parents, which may be too small to adequately support the reliability of each question. Secondly, because Sample 2 was asked to fill out the same questionnaire twice, the collected data may have been more reflective of “typical” dietary behaviors and family routines rather than actual behaviors over the course of that time period. Thirdly, the time period chosen for this survey may have represented very unusual weeks, which would further skew the results. Finally, education level, social status, marital status, age, and many other factors may be underlying factors in the association between family meals and fruit and vegetable consumption in Samples 1 and 2, and the pilot assessment tool does not distinguish those.

Frequent family meals did suggest higher fruit and vegetable consumption; although, the sample size was not large enough for results to be significant in individual questions assessed. However, question 1 results were significant when regroupings occurred, as the



sample size of each category increased due to decreased response category groupings. However, without observing the habits of the participants during mealtime, it is difficult to measure the family meal environment. This holds true for fruit and vegetable consumption as well.

### **Implications for further research**

There is a need for further research in family meals, as well as, ways to make effective evaluation tools that accurately measure the quality and frequency of family meals. Further evaluation of the SNAP Family Meal Assessment tool is warranted to determine the relationship between family meals, family meal enjoyment, and fruit and vegetable consumption. Research with the target population groups to compare demographics with mealtime enjoyment and frequency of family meals may be the next step in this area of study. There are several questions that stem from the results of this research indicating that this tool may lead to future studies within the field of family meal education.

### **Summary Statement**

Family meal frequency and positive mealtime environment may be a contributing factor to overall fruit and vegetable consumption in children and research has indicated that educational intervention may increase both of these aspects. Pilot testing of questions regarding family meal frequency, positive mealtime environment and fruit and vegetable consumption has led to an assessment tool that can be used to potentially measure these aspects in a way that is conducive to the needs of the target audience. The final assessment tool should undergo further analysis to determine the extent of this assessment tool's accuracy, reliability, and ease of use.

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## **Appendix A**

### **SNAP Family Meal Project Audience Descriptions**

#### **Expanded Food and Nutrition Education Program (EFNEP)**

EFNEP participants are limited resource adults with children typically up to age 12 years. The participants are custodial parents or grandparents. Income eligibility is typically based on one of two criteria. If on a federal program such as WIC or Supplemental Nutrition Assistance Program they automatically qualify. Or, if they live in a household that meets 125% of the poverty guidelines for income.

#### **Food and Nutrition Program (FNP)**

FNP participants are eligible for the Supplemental Nutrition Assistance Program. Most Indiana participants are white and female.

#### **Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)**

A WIC participant is defined as a pregnant woman, postpartum breastfeeding or non-breastfeeding woman, an infant up to one year of age, and children from one to five years of age. All participants must live in Indiana, live in a household that meets 185% poverty guidelines for income, and have a medical/nutritional risk.

## **Appendix B**

### **Description of Assessment Tool for Pilot Testing**

#### **Instructions given to Sample 1:**

##### **Family Meal Survey:**

*Thank you for answering some questions about how your family experiences meals. For the purposes of this survey, your “family” is the group of people who live in your house and share the same household food resources.*

*Please let us know if any questions or answers are confusing or unclear. Do not guess at any answers. If you don’t know, we want to know that. Most questions ask for the same information in different ways. We want to find out which questions are the best. That way the final version will have only a few questions.*

#### **Instructions given to Sample 2:**

##### **Family Meal Survey:**

*Thank you for answering some questions about how your family experiences meals. For the purposes of this survey, your “family” is the group of people who live in your house and share the same household food resources. For questions referring to only one child, answer for the child enrolled in this program (Miller Child Learning Center or Child Development Lab School). Please let us know if any questions or answers are confusing or unclear. (You may write comments in the margins.) Do not guess at any answers. If you don’t know, we want to know that. Many questions ask for the same information in different ways. We want to find out which questions are the best. That way the final survey will have only a few questions.*

It should be noted that on the original surveys, the instructions and questions 1 through 3 appeared on page 1, questions 4 through 6 appeared on page 2, question 7 appeared on page 3, and questions 8 through 10 appeared on page 4.

## SNAP Family Meal Assessment Tool

*Question 1 was adapted from the ACT survey developed at Purdue University<sup>15</sup>.*

1. In the past week, how many days did most of your family living in your house, or at least one adult eating with your child(ren), do the following? (check only one answer in each row)

	Never	1-2 days	3-4 days	5-6 days	7 days
Eat breakfast together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eat lunch together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eat dinner together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 <input type="checkbox"/> I don't know					

*Question 2 was modeled from the Project EAT study used by Neumark-Sztainer et al<sup>10</sup>.*

2. How often do you eat together as a family, or at least one adult in your household sits and eats with child(ren)? (please check only one answer)

☐ rarely or never  
☐ 1-2 times/week  
☐ 3-4 times/week  
☐ 5-6 times/week  
☐ once a day  
☐ 2-3 times a day  
  
☐ I don't know

*Question 3 was taken from Johnson, et al.'s research with WIC<sup>13</sup>.*

3. Below are statements about feeding your child. Check the box in each row that describes how often this statement is true.

	Always	Usually	Sometimes	Never
Do you usually watch TV during meals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you enjoy eating meals with your children?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you sit with your children when they eat?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you plan ahead for family meals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question 4 was taken from the Project EAT study<sup>10</sup>.

**4. How strongly do you agree with the following statements about mealtime in your family?**

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
In my family, it is important that the whole family eat at least one meal a day together.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In my family, we often watch TV while eating meals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question 5 was taken from various WIC nutrition questionnaires. The response options were taken from Ellyn Satter's "Feeding Your Child" questionnaire<sup>16</sup>.

**5. Below are statements about feeding your child. Circle the letter that tells how often you do what it says.**

	Almost always	Often	Sometimes	Rarely	Never
I sit down and eat meals with my child.	A	O	S	R	N
My child watches TV while eating.	A	O	S	R	N

Question 6 was adapted from WIC questionnaires.

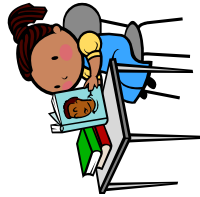
**6. How frequently is the television on during meals? (check only one answer)**

- ☐ all meals
- ☐ most meals
- ☐ some meals
- ☐ rarely or never at meals

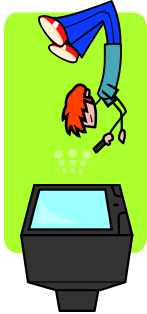
Two versions of question 7 were developed. The following is the first version of question 7 and was implemented within Sample 1.

Question 7 was developed here at Purdue using Virginia's Fit WIC project as a guide<sup>17</sup>.

There are many ways families can eat meals. Using the following pictures as a guide, choose how many times each picture describes the way your child eats his/her meals in a typical week.



Child eats meal alone



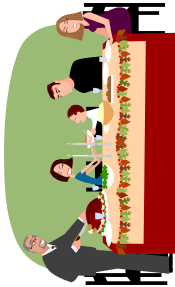
Child eats alone in front of TV



Child eats meal in car



Child eats at daycare/school



You and your child eat together at a table at home





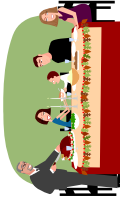




You and your child eat together while watching TV











You and your child eat together in a restaurant

In each space below write a number from 0 to 7 for how many times a week your child eats his/her meals in that way. Across each row the total should add up to 7 breakfasts, 7 lunches, and 7 dinners.

							
Breakfast							
Lunch							
Dinner							



7. Fill in the number of times in a typical week your child eats each meal (breakfast, lunch, and dinner) in the following ways. Totals for each meal should be no more than 7. (An example is provided that might be lunch time.)

	Child eats...	Breakfast	Lunch	Dinner	Example
	by themselves				
	while watching TV alone				1
	in car				1
	at daycare or school				3
	at home with adult(s) at a table				1
	while watching TV with family				
	in a restaurant				1
	non-traditional setting				
	<b>Total</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>

Question 8 was based on FNP's assessment for fruit and vegetable intake.

**8. Circle the number that matches the one best answer for each statement:**

	Rarely or Never	Some of the time	About ½ the time	Most of the time	Almost always
I <u>offer</u> my child 5 or more fruit & vegetable servings a day.	1	2	3	4	5
My child <u>eats</u> 5 or more fruit & vegetable servings a day.	1	2	3	4	5

Questions 9 and 10 were based on WIC's food frequency questionnaire.

**9. How many times a day do you offer the following foods to your child:**  
(Circle the number that best describes how often.)

Fruits (fresh, canned, frozen or dried)	0	1	2	3	4	5 or more
Vegetables (fresh, canned or frozen)	0	1	2	3	4	5 or more
100% fruit or vegetable juice	0	1	2	3	4	5 or more

**10. How many times a day does your child eat the following foods:**  
(Circle the number that best describes how often.)

Fruits (fresh, canned, frozen or dried)	0	1	2	3	4	5 or more
Vegetables (fresh, canned or frozen)	0	1	2	3	4	5 or more
100% fruit or vegetable juice	0	1	2	3	4	5 or more

## **Appendix C**

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## SNAP Family Meal Assessment Tool for EFNEP, FNP, WIC

Complete one assessment per family unit. Complete through A when pretest given, complete B or C when post-test given. Complete the attached pretest before providing education and complete the post-test ... as per program policy... (add to pretest page and post-test page, participant ID # and date, attach all 3 pages together)

**Program administering:** ☐ EFNEP ☐ FNP ☐ WIC **Participant ID #:** \_\_\_\_\_

**Relationship of person completing survey to child(ren):**

☐ mother ☐ father ☐ grandparent ☐ foster parent ☐ other:

**Mode of administration:**

- ☐ staff asked questions orally and filled out survey for participant
- ☐ participant completed survey without, or with minimal, assistance
- ☐ staff explained questions while participant filled in survey

**Where was assessment administered?**

☐ one-on-one appointment in clinic setting ☐ group setting/class ☐ in-home visit

**A. Family Meal Education provided at time of pretest: Check ALL that apply**

- ☐ None, to be done at follow-up
- ☐ Handout given
- ☐ Discussed handout
- ☐ Goals set, check below
- ☐ Scheduled follow-up

**Family meal education was provided as part of:**

☐ one-on-one appointment in clinic setting ☐ group setting/class ☐ in-home visit

**Initial goals:** ☐ Find time ☐ Good places ☐ Easy/healthy ☐ No TV ☐ Enjoy time together  
(check one or more)

**B. Family Meal Education between pretest and post-test: Check ALL that apply**

- ☐ Handout given
- ☐ Discussed handout
- ☐ Goals set, check below
- ☐ Follow-up on progress: number of follow-ups \_\_\_\_\_

**Family meal education was provided as part of:** (check all that apply)

☐ one-on-one appointment in clinic setting ☐ group setting/class ☐ in-home visit

**Initial goals:** ☐ Find time ☐ Good places ☐ Easy/healthy ☐ No TV ☐ Enjoy time together  
(check one or more)

**Follow-up goals:** ☐ Find time ☐ Good places ☐ Easy/healthy ☐ No TV ☐ Enjoy time together  
(check one or more)

**Goals met:** ☐ Find time ☐ Good places ☐ Easy/healthy ☐ No TV ☐ Enjoy time together  
(check one or more)

**C. No Family Meal Education Received**

☐ Check if no family meal education received until after post-test (control group).

## SNAP Family Meal Assessment Tool for EFNEP, FNP, WIC

Complete one assessment per family unit. Complete section A when pretest is given. Complete section B when family meal education is provided. Complete section C when post-test is given. Complete the attached pretest *before* providing education and complete the post-test on a date *later* than when family meal education is provided, as per program policy. If no additional visits are possible following family meal education, submit with only pretest. Attach all 3 pages together.

### COVER INFORMATION PAGE IS FOR STAFF USE ONLY

**A. Program administering:** ☐ EFNEP ☐ FNP ☐ WIC **Participant ID #:** \_\_\_\_\_

**Relationship of person completing survey to child(ren):**

☐ mother ☐ father ☐ grandparent ☐ foster parent ☐ other:

**Number of children living in household?** \_\_\_\_ **Age of each child in family:** \_\_\_\_\_

**Age of person completing survey:** \_\_\_\_ **Is this person a high school graduate/GED?** ☐ yes ☐ no

**Pretest:** \_\_\_\_\_ **Date:** \_\_\_\_\_ (complete prior to family meal education)

### B. Family Meal Education:

Check if completed:	Family Meal Education provided:	Date education provided:
	No family meal education provided (control group – measuring effect of no education)	
	“Let’s Talk about Mealtime” Handout given	
	“Let’s Talk about Mealtime” Handout discussed	
	Initial goal(s) set using “Let’s Talk about Mealtime” Handout, check below in family meal goal-setting section	
	Follow-up goal(s) set using “Let’s Talk about Mealtime” Handout, check below in family meal goal-setting section	
	Other family meal resource(s) used, list:	
	Follow-up on progress of previous family meal education and goal setting; check below in family meal goal-setting section when goals are met. (List all dates of follow-ups.)	

**Family meal education was provided as part of:** (check all that apply)

☐ one-on-one appointment in clinic setting ☐ group setting/class ☐ in-home visit ☐ other:

### Family Meal Goal- Setting

**Initial goals:** ☐ Find time ☐ Location ☐ Easy/healthy ☐ No TV ☐ Enjoy time together  
(check one or more)

**Follow-up goals:** ☐ Find time ☐ Location ☐ Easy/healthy ☐ No TV ☐ Enjoy time together  
(check one or more)

**Goals met:** ☐ Find time ☐ Location ☐ Easy/healthy ☐ No TV ☐ Enjoy time together  
(check one or more)

**C. Post-test:** \_\_\_\_\_ **Date:** \_\_\_\_\_ (to be completed on later date from family meal education)

## SNAP Family Meal Assessment Tool – Pretest

**To be completed by Staff:**    **Date:** \_\_\_\_\_    **Participant ID #:** \_\_\_\_\_

**Mode of administration:**

- ☐ staff asked questions orally and filled out survey for participant
- ☐ participant completed survey without, or with minimal, assistance
- ☐ staff explained questions while participant filled in survey

**Where administered?**   ☐ one-on-one appointment /clinic setting   ☐ group setting/class   ☐ in-home visit   ☐ other

**Instructions for answering questions**

**Survey questions:**

**One about family meal frequency**

**One about family meal environment/TV viewing**

**One about fruit and vegetable intake**

## SNAP Family Meal Assessment Tool – Post-test

**To be completed by Staff:**    **Date:** \_\_\_\_\_    **Participant ID #:** \_\_\_\_\_

**Mode of administration:**

- ☐ staff asked questions orally and filled out survey for participant
- ☐ participant completed survey without, or with minimal, assistance
- ☐ staff explained questions while participant filled in survey

**Where administered?**   ☐ one-on-one appointment /clinic setting   ☐ group setting/class   ☐ in-home visit   ☐ other

**Instructions for answering questions**

**Survey questions:**

**One about family meal frequency**

**One about family meal environment/TV viewing**

**One about fruit and vegetable intake**

**SNAP Family Meal Assessment Tool for EFNEP, FNP, WIC****COVER INFORMATION PAGE IS FOR STAFF USE ONLY**

Complete one assessment per family unit. Complete section A when pretest is given. Complete section B when family meal education is provided. Complete section C when post-test is given. Complete the attached pretest *before* providing education and complete the post-test on a date *later* than when family meal education is provided, as per program policy. If no additional visits are possible following family meal education, submit with only pretest. Attach all 3 pages together.

**A. Pretest:**                      **Date:** \_\_\_\_\_ (complete prior to family meal education)

**Program administering:** ☐ EFNEP   ☐ FNP   ☐ WIC                      **ID #:** \_\_\_\_\_

**Relationship of person completing survey to child(ren):**

☐ mother   ☐ father   ☐ grandparent   ☐ foster parent   ☐ other:

**Number of children in each age range:** ☐ 0-1 yr   ☐ ≥ 1 – 5 yrs   ☐ 6-11 yrs   ☐ ≥ 12 yrs

**Age of person completing survey:** \_\_\_\_ **Is this person a high school graduate/GED?** ☐ yes ☐ no

**Ethnicity of person completing survey:** ☐ American Indian/Alaskan Native   ☐ Asian

☐ Black/African American   ☐ Hispanic   ☐ Native Hawaiian/Pacific Islander   ☐ White

☐ Other, please describe:

**B. Family Meal Education:**

Check if completed:	Family Meal Education provided:	Date education provided:
	No family meal education provided (control group – measuring effect of no education)	
	“Let’s Talk about Mealtime” Handout given	
	“Let’s Talk about Mealtime” Handout discussed	
	Initial goal(s) set using “Let’s Talk about Mealtime” Handout, check below in family meal goal-setting section	
	Follow-up goal(s) set using “Let’s Talk about Mealtime” Handout, check below in family meal goal-setting section	
	Other family meal resource(s) used, list:*	
	Follow-up on progress of previous family meal education and goal setting; check below in family meal goal-setting section when goals are met. (List all dates of follow-ups.)	

\*If additional space is needed, please use the back of the page for this or any other answers.

**Family meal education was provided as part of:** (check all that apply)

☐ one-on-one appointment in clinic setting   ☐ group setting/class   ☐ in-home visit   ☐ other:

**Family Meal Goal- Setting**

**Initial goals:** ☐ Find time   ☐ Location   ☐ Easy/healthy   ☐ No TV   ☐ Enjoy time together  
(check one or more)

**Follow-up goals:** ☐ Find time   ☐ Location   ☐ Easy/healthy   ☐ No TV   ☐ Enjoy time together  
(check one or more)

**Goals met:** ☐ Find time   ☐ Location   ☐ Easy/healthy   ☐ No TV   ☐ Enjoy time together  
(check one or more)

**C. Post-test:**                      **Date:** \_\_\_\_\_ (to be completed on later date from family meal education)

**Relationship of person completing survey to child(ren):** ☐ same as above, or:

☐ mother   ☐ father   ☐ grandparent   ☐ foster parent   ☐ other:



Cover Page, Revision 2- Continued  
**SNAP Family Meal Assessment Tool – Pretest**

**To be completed by Staff:**    **Date:** \_\_\_\_\_    **ID #:** \_\_\_\_\_

**Mode of administration:**

- ☐ staff asked questions orally and filled out survey for participant
- ☐ participant completed survey without, or with minimal, assistance
- ☐ staff explained questions while participant filled in survey

**Where administered?**   ☐ one-on-one appointment /clinic setting   ☐ group setting/class   ☐ in-home visit   ☐ other

**Instructions for answering questions**

**Survey questions:**

**One about family meal frequency**

**One about family meal environment/TV viewing**

**One about fruit and vegetable intake**

Cover Page, Revision 2- Continued  
**SNAP Family Meal Assessment Tool – Post-test**

**To be completed by Staff:**    **Date:** \_\_\_\_\_    **ID #:** \_\_\_\_\_

**Mode of administration:**

- ☐ staff asked questions orally and filled out survey for participant
- ☐ participant completed survey without, or with minimal, assistance
- ☐ staff explained questions while participant filled in survey

**Where administered?**   ☐ one-on-one appointment /clinic setting   ☐ group setting/class   ☐ in-home visit   ☐ other

**Instructions for answering questions**

**Survey questions:**

**One about family meal frequency**

**One about family meal environment/TV viewing**

**One about fruit and vegetable intake**

**SNAP Family Meal Assessment Tool for EFNEP, FNP, WIC****COVER INFORMATION PAGE IS FOR STAFF USE ONLY**

Complete one assessment per family unit. Complete section A when pretest is given. Fill in section B *each time* family meal education is provided. Complete section C when post-test is given. Complete the attached pretest *before* providing education and complete the post-test on a date *later* than when family meal education is provided, as per program policy. If no additional visits are possible following family meal education, submit with only pretest. Attach all 3 pages together.

**A. Pretest:**      **Date:** \_\_\_\_\_ (complete prior to family meal education)

**Program administering:** ☐ EFNEP   ☐ FNP   ☐ WIC      **ID #:** \_\_\_\_\_

**Relationship of person completing survey to child(ren):**

☐ mother   ☐ father   ☐ grandparent   ☐ foster parent   ☐ other:

**Number of children in each age range:** ☐ 0-1 yr   ☐ ≥ 1 – 5 yrs   ☐ 6-11 yrs   ☐ ≥ 12 yrs

**Age of person completing survey:** \_\_\_\_\_ **Is this person a high school graduate/GED?** ☐ yes   ☐ no

**Race/Ethnicity of person completing survey:** ☐ American Indian/Alaskan Native   ☐ Asian

☐ Black/African American   ☐ Hispanic/Latino   ☐ Native Hawaiian/Pacific Islander   ☐ White

☐ Other, please describe:

**B. Family Meal Education:** (fill in each time family meal education is provided)

Check if completed:	Family Meal Education provided:	Date education provided:
	No family meal education provided (control group – measuring effect of no education)	
	“Let’s Talk about Mealtime” Handout given, not discussed	
	“Let’s Talk about Mealtime” Handout given and discussed	
	Initial goal(s) set using “Let’s Talk about Mealtime” Handout, check below in family meal goal-setting section	
	Follow-up goal(s) set using “Let’s Talk about Mealtime” Handout, check below in family meal goal-setting section	
	Other family meal resource(s) used, list:*	
	Follow-up on progress of previous family meal education and goal setting; check below in family meal goal-setting section when goals are met. (List all dates of follow-ups.)	

\*If additional space is needed, please use the back of the page for this or any other answers.

**Family meal education was provided as part of:** (check all that apply)

☐ one-on-one appointment in clinic setting   ☐ group setting/class   ☐ in-home visit   ☐ other:

**Family Meal Goal- Setting:**

**Initial goals:**      ☐ Find time   ☐ Location   ☐ Easy/healthy   ☐ No TV   ☐ Enjoy time together  
(check one or more)

**Follow-up goals:**      ☐ Find time   ☐ Location   ☐ Easy/healthy   ☐ No TV   ☐ Enjoy time together  
(check one or more)

**Goals met:**      ☐ Find time   ☐ Location   ☐ Easy/healthy   ☐ No TV   ☐ Enjoy time together  
(check one or more)

**C. Post-test:**      **Date:** \_\_\_\_\_ (to be completed on later date from family meal education)

**Relationship of person completing survey to child(ren):**      ☐ same as above, or:

☐ mother   ☐ father   ☐ grandparent   ☐ foster parent   ☐ other:

Final Cover Page, Revision 3- Continued  
**SNAP Family Meal Assessment Tool – Pretest**

**To be completed by Staff:**      **Date:** \_\_\_\_\_ **ID #:** \_\_\_\_\_

**Mode of administration:**

- ☐ staff asked questions orally and filled out survey for participant  
☐ participant completed survey without assistance  
☐ staff explained questions while participant filled in survey

**Where administered?**   ☐ one-on-one appointment /clinic setting   ☐ group setting/class   ☐ in-home visit   ☐ other

## Tell us about your family's meals:

Thank you for answering some questions about how your family experiences meals. For the purposes of this survey, your "family" is the group of people who live in your house and share the same household food resources. For questions about only one child, please answer for the child enrolled in this program.

- 1. In the past week, how many days did most of your family living in your house, or at least one adult eat with your child(ren), do the following?** (check only one answer in each row)

	Never	1- 2 days	3-4 days	5-6 days	7 days
Eat breakfast together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eat lunch together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eat dinner together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ I don't know

- 2. Below are questions about feeding your child. Check the box in each row that describes how often your answer to the question is yes.**

	Always	Usually	Sometimes	Never
Do you usually watch TV during meals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you enjoy eating meals with your children?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you sit with your children when they eat?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you plan ahead for family meals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- 3. How many times a day does your child eat (or drink) the following foods:**  
 (Circle the number that best describes how often.)

<b>Fruits</b> (fresh, canned, frozen or dried)	0	1	2	3	4	5 or more
<b>Vegetables</b> (fresh, canned or frozen)	0	1	2	3	4	5 or more
<b>100% fruit or vegetable juice</b>	0	1	2	3	4	5 or more

**Thank you!**

Final Cover Page, Revision 3- Continued  
**SNAP Family Meal Assessment Tool – Post-test**

**To be completed by Staff:**      **Date:** \_\_\_\_\_ **ID #:** \_\_\_\_\_

**Mode of administration:**

- ☐ staff asked questions orally and filled out survey for participant  
☐ participant completed survey without assistance  
☐ staff explained questions while participant filled in survey

**Where administered?**   ☐ one-on-one appointment /clinic setting   ☐ group setting/class   ☐ in-home visit   ☐ other

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	Never	1- 2 days	3-4 days	5-6 days	7 days
Eat breakfast together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eat lunch together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eat dinner together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ I don't know

- 2. Below are questions about feeding your child. Check the box in each row that describes how often your answer to the question is yes.**

	Always	Usually	Sometimes	Never
Do you usually watch TV during meals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you enjoy eating meals with your children?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you sit with your children when they eat?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you plan ahead for family meals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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<b>Vegetables</b> (fresh, canned or frozen)	0	1	2	3	4	5 or more
<b>100% fruit or vegetable juice</b>	0	1	2	3	4	5 or more

**Thank you!**

## **Appendix D: Implementation of SNAP focus group questions**

### **Discussion Questions for Focus Group and Interviews:**

Think back to the last time you did family meal education. Look at the cover page for the family meal assessment tool and consider how you would administer it with a participant. Imagine that you are completing it with someone as you answer the following questions:

1. Are the overall instructions clear? How do you interpret the use of this assessment tool and specifically the cover page? The intent of the cover page is to be completed by the staff only. How can we communicate this, such that it is not given to participants to complete?
2. Is it readable? Is the font size large enough? Do the questions flow in a logical order?
3. Is anything confusing or unclear? Is it clear what information is being asked for? Do you have any suggested changes in wording?
4. Is it clear how to fill it out? Do you have any suggestions for simplifying responses or laying out questions and answers?
5. Does it ask for the information in such a way that the desired information will be obtained? Is there a better way to ask?
6. Describe all the ways you provide family meal education. Does the assessment tool adequately allow you to describe how family meal education is provided in a concise and accurate way?
7. Describe how you use the SNAP family meal educational handout. Does the assessment tool adequately allow you to describe your use of the handout in a concise and accurate way?
8. Do the options for goal setting clearly describe the choices in the handout?
9. Could this be completed realistically with participants? If not, how could it be changed to be done practically? Consider both the “pretest” data collection time and the “post-test” data collection time: how can we make this work best?
10. The honors project reviewers recommended that it would be advantageous to collect a few more pieces of information including age/ethnicity of adult as well as children represented in the family and possibly educational level. We added questions to collect this information to this version; do you have any comments about how this was done?
11. What kinds of directions/training are needed to use this tool?